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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,622	02/24/2004	Kazumasa Inoue	TKMTP127	2045

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EXAMINER	
CHEUNG, WILLIAM K	
ART UNIT	**PAPER NUMBER**
1796	

MAIL DATE	DELIVERY MODE
10/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/786,622	INOUE ET AL.	
	Examiner	Art Unit	
	WILLIAM K. CHEUNG	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10 and 12-18* is/are pending in the application.

4a) Of the above claim(s) *12-17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10 and 18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1. The request filed on August 7, 2008 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 10/786622 is acceptable and a RCE has been established. An action on the RCE follows.

2. In view of amendment filed August 7, 2008, claims 1-9, 11 have been cancelled, and new claim 18 has been added. Claims 10, 12-18 are pending. Claims 12-17 are drawn to non-elected subject matter. Claims 10, 18 are examined with merit.

3. In view of amendment filed August 7, 2008, the rejection of Claims 1, 10 under 35 U.S.C. 112, second paragraph, is withdrawn.

4. In view of amendment filed August 7, 2008, the rejection of Claims 10, 18 under 35 U.S.C. 103(a) as being unpatentable over Kerkar et al. (US patent 5,604,273) in view of Ohta et al. (US Patent 5,660,626), further in view of Fischer (US Patent 3,287,145), and yet, still further in view of Kloetzer et al. (US Patent 4,927,463), is withdrawn.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 10, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerkar et al. (US patent 5,604,273) in view of Ohta et al. (US Patent 5,660,626), further in view of Dupont (WO 99/15475) and WO 99/15475, Derwent disclosure (April 1, 1999), and yet, still further in view of Kloetzer et al. (US Patent 4,927,463) for the reasons adequately set forth from paragraph 6 of fhe office action of April 16, 2008.

Claim 18 (new):	A multi-functional admixture for concrete, said multi-functional

admixture comprising Component A by 20-84 weight %, Component B by 15-79 weight % and Component C by 0.3-3 weight % such that their total will be 100 weight %, wherein:

said Component A is one or more copolymers selected from a group consisting of graft copolymers and salts of copolymers, wherein the graft copolymers are obtained by a first process and a second process, and the salts of graft copolymers are obtained by said first process, said second process and a third process, said Component A having a structural unit shown by Formula 6;

said first process is for obtaining copolymers with weight-average molecular weight of 10000-50000 by radical polymerization of a mixture of radical polymerizable monomers containing maleic anhydrides and monomers shown by Formula 1 by a total of 95 molar % or more at molar ratio of 50/50-70/30 in the absence of solvent;

said second process is for obtaining graft copolymers by graft reaction of 100 weight parts of said copolymers obtained in said first process with 0.2-4 weight parts of polyether compounds shown by Formula 2;

said third process is for obtaining salts of graft copolymers by partially or completely neutralizing said graft copolymers obtained in said second process with alkali metal hydroxide;

said Component B is polypropyleneglycol monoalkyl ether shown by Formula 3;

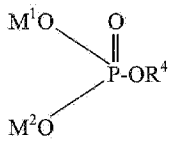
said Component C is organic phosphate shown by Formula 4 or Formula 5;

Formula 1 is given by $CH_2{=}CH{-}CH_2{-}O{-}A^1{-}O{-}R^1$;

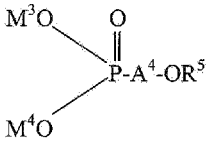
Formula 2 is given by $R^2{-}O{-}A^2{-}OH$;

Formula 3 is given by $R^3{-}O{-}A^3{-}OH$;

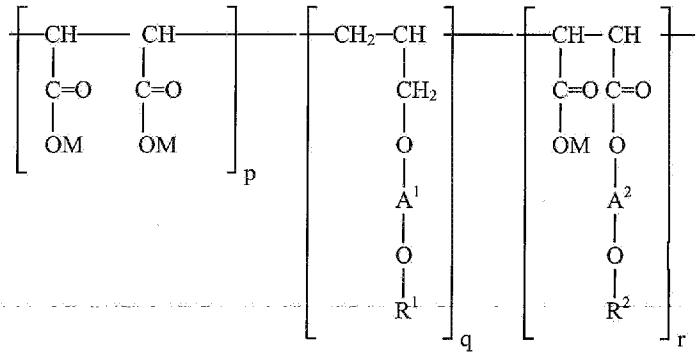
Formula 4 is given by



Formula 5 is given by



Formula 6 is given by



where:

R^1 is methyl group or acetyl group;

R^2 is aliphatic hydrocarbon group with 10-20 carbon atoms;

A^1 is residual group obtained by removing all hydroxyl groups from polyethyleneglycol with polyoxyethylene group having 10-90 oxyethylene units in molecule;

A^2 is residual group obtained by removing all hydroxyl groups from polyalkyleneglycol with polyoxyalkylene group having in molecule a total of 25-60 oxyethylene units and oxypropylene units;

R^3 is alkyl group with 3-5 carbon atoms;

A^3 is residual group obtained by removing all hydroxyl groups from (poly)propyleneglycol with (poly)oxypropylene group having in molecule only 2-4 oxypropylene units;

R^4 and R^5 are each alkyl group with 8-18 carbon atoms;

A^4 is (poly)oxypropylene group with 1-5 oxypropylene units;

M is hydrogen atom or alkali metal;

M^1, M^2, M^3 and M^4 are each hydrogen atom, alkali metal, alkali earth metal, ammonium or organic amine; and

p, q and r are each an integer equal to or greater than 1.

The prior art to Kerkar et al. directs to a cement admixture composition comprising a alkenyl ether/maleic copolymer which is represented by the formula shown at column 3, lines 15-31, which reads on the instant claimed first process in making the component A. Kerkar et al. disclose that the number average molecular weight of the copolymer is preferably 1,000 to 200,000 (column 3, lines 54-57). Kerkar et al. also teach that the salt of the hydrolyzed product of the copolymer is a salt formed by the maleic acid unit. Exemplary salts include alkali metal salts and alkaline earth metal salts (column 3, lines 61-67), which reads on the instantly claimed third process.

The difference between the prior art and the present application is that Kerkar et al. do not include the second process as required by the instant claim 18. Kerkar et al. do not include components B and C in the admixture formulation.

However, Kerkar et al. disclose that the component (n), i.e. the maleic acid unit in the formula III, can be present in the form of the anhydride, or a partially or completely hydrolyzed product or as a salt of the hydrolyzed product (column 3, lines 32-34) and the hydrolyzed product is a product having a hydrolyzed maleic acid unit resulting from the hydrolysis of the maleic anhydride unit in the copolymer (column 3, lines 59-60). This disclosure would give a hint of exploring a further process for the graft copolymer to one having ordinary skill in the art.

The prior art to Ohta et al. relates to a shrinkage-reducing dispersion for use in cementitious compositions comprising a graft polymer, which is a polycarboxylic acid or a salt thereof, having side chains derived from oligoalkyleneglycol (Abstract). "—CH(CO(OM))—CH(CO(OR))—" unit is recognized in General Formulas S, A and B

(columns 5-6) wherein M is H and R is oligoalkyleneylycol (column 5, line 51 and column 6, line 1, and also column 2, lines 10-19). Regarding the structure of formula (6) as claimed, Ohta et al. (col. 7-8, Table 1, AO1, AO4, AO5, AO6) clearly disclose structure of formula (6) as claimed.

In light of Ohta et als' teaching of obtaining a graft polymer with said side chains through hydrolysis of the maleic anhydride unit, it would have been obvious to one having ordinary skill in the art at the time the invention was made to hydrolyze the maleic anhydride unit in Kerkar et als' copolymer, as taught by Ohta et al., because Kerkar et al. expressively imply hydrolysis of the maleic acid unit and Ohta et al. teach that the graft polymer having the said chain obtained through such hydrolysis provides shrinkage-reducing in cementitious composition (Abstract).

As to the component B, the prior art to Dupont et al. (Title and abstract) directs to a stable pumpable binder composition for a cement admixture comprising diethylene glycol butyl ether (English Abstract of the Derwent disclosure).

Motivated by the expectation of success of improving pumpable properties (Title and abstract), it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate diethylene glycol butyl ether, as taught by Dupont et al., in Kerkar et als' admixture.

As to the component C, the prior art to Kloetzer et al. provides a stabilized aqueous dispersion comprising gypsum and a surface-active which is a phosphoric acid esters represented by formula I or II (Abstract, column 2, lines 61-68, and column 3, lines 10-31), wherein the formula II meets the instant claimed component C of formula

5. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a phosphoric acid ester surfactant, as taught by Kloetzer et al., in Kerkar et als' admixture motivated by a reasonable expectation of successfully obtaining the corresponding admixture for concrete since Kloetzer et al. have taught the benefits of increased storage stability by incorporating such phosphoric acid ester surfactant in a gypsum admixture.

Kerkar et al. teach that a cement admixture composition should contain the copolymer in a weight ratio of 1-100 (column 4, lines 40-42); Berke et al teach that a cement admixture composition can contain up to 35 wt% of the glycol (column 7, lines 38-40); Kloetzer et al. disclose that phosphoric acid ester is present in an amount of 0.1-2 wt% of the aqueous dispersion composition (column 7, lines 31-33).

Kerkar et al. require the number average molecular weight for the copolymer to be 1,000 to 200,000 (column 3, lines 54-57).

Kloetzer et al. disclose that the dispersions are normally adjusted to a pH value of 9-10 when an aqueous solution of alkali metal hydroxide is used (column 4, lines 50-57). Such pH adjustment would result in a phosphoric acid ester of formula II (column 3, line 20) wherein –OH would become –OM (M=alkali metal).

Response to Arguments

7. Applicant's arguments filed August 7, 2008 have been fully considered but they are not persuasive.

Regarding the claimed structure represented by formula (6) of new claim 18, applicants argue that Ohta et al. (col. 5, line 40-50) teach a copolymer containing 4 components. However, applicants fail to recognize that Ohta et al. (col. 7-8, Table 1, A01, A04, A05) clearly indicates that b has a value of 0, which means the 4 component polymer can be a three component polymer.

General formula A

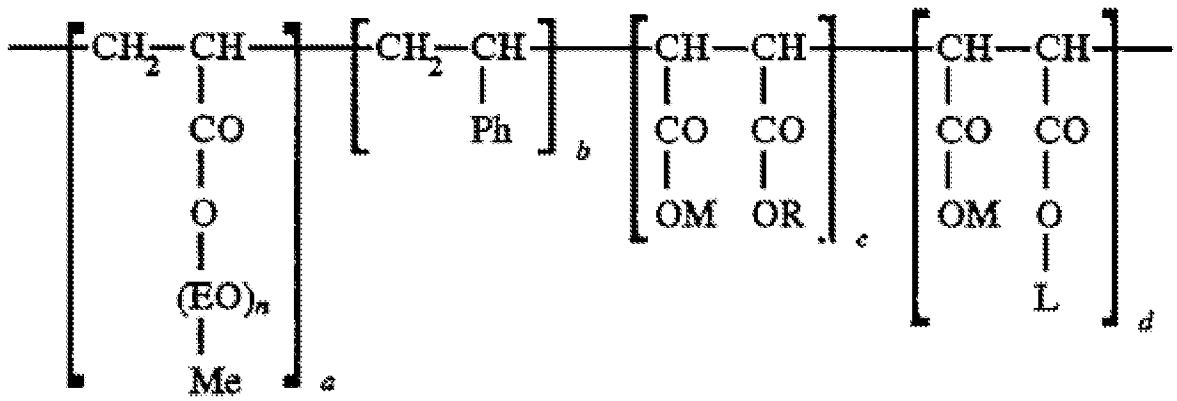


TABLE 1-continued

		Monomer Composition								ST	
P	S	a	b	c	d	n	R	L	MW	conc	MV
	S09	1.0	0.50	0.47	0.03	12	$(Me)_2N$—$(EO)_1$—H	L61	18000	0.38	41.5
	S10	1.0	0.50	0.47	0.03	12	$(Bu)_2N$—$(EO)_1$—H	L61	20000	0.38	40.4
	S11	1.0	0.50	0.50	0	12	Ph—$O(Ph)_{1.5}$—H	—	23000	0.38	43.2
	S12	1.0	0.50	0.47	0.03	12	$(Me)_2Ph$—$O(PO)_{13}$—H	L61	21000	0.38	45.1
	S13	1.0	0.50	0.47	0.03	12	$(C_9H_{19})Ph$—$O(EO)_3$—$(PO)_{12}$—H	L61	23000	0.38	42.3
	S14	1.0	0.50	0.47	0.03	12	NPG	L61	20000	0.38	40.9
	S15	1.0	0.50	0.50	0	12	PE	—	21000	0.38	43.1
	S16	1.0	0.50	0.47	0.03	12	ESG	L61	23000	0.38	41.7
AMA	A(A)	1.0	0	1.0	0	6	M	—	23000	0.34	52.6
	A(B)	1.0	0	1.0	0	11	M	—	21000		
	A(C)	0.5	0.5	1.0	0	12	M	—	19000		
	A01	1.0	0	0.97	0.03	6	Bu—$O(EO)_2(PO)_2$—H	L64	21000	0.34	38.2
	A02	0.99	0.01	0.97	0.03	6	Bu—$O(EO)_2(PO)_1$—H	L64	22000	0.34	35.9
	A03	1.0	0	1.0	0	6	Bu—$O(EO)_2(PO)_2$—H	—	20000	0.34	34.1
	A04	1.0	0	0.97	0.03	6	Bu—$O(EO)_2(PO)_2$—H, PE	L64	22000	0.34	38.2
	A05	1.0	0	0.97	0.03	11	PE	L64	26000	0.34	40.2
	A06	1.0	0	1.0	0	11	PE	—	21000	0.34	40.0
	A07	0.60	0.40	0.97	0.03	12	Bu—$O(EO)_2(PO)_2$—H	L64	22000	0.34	41.2
	A08	0.50	0.50	1.0	0	12	Bu—$O(EO)_2(PO)_2$—H	—	23000	0.34	43.1
	A09	0.50	0.50	1.0	0	12	PE	—	26000	0.34	45.1
	A10	0.60	0.40	0.97	0.03	12	PE	L64	22000	0.34	43.5
BMA	B	1.0	0	1.0	0	12	M	—	6000	0.68	61.8
	B01	1.0	0.97	0	0.03	12	—	L61	7000	0.68	60.5
	B02	1.0	0.50	0.47	0.03	12	Bu—$O(EO)_2(PO)_2$—H	L61	17000	0.68	43.2
	B03	1.0	0.50	0.50	0	12	Bu—$O(EO)_4(PO)_4$—H	—	25000	0.68	45.1
	B04	1.0	0.50	0.47	0.03	12	Me—$O(PO)_4$—H	L61	16000	0.68	44.2
	B05	1.0	0.50	0.47	0.03	12	$(Me)_2N$—$(EO)_1$—H	L61	9000	0.68	43.7
MAA	M	1.0	5.0	0	0.05	10	—	440	36000	0.29	58.2
	M01	1.0	2.0	1.0	0	10	Bu—$O(EO)_2(PO)_2$—H	—	34000	0.29	41.0
	M02	1.0	2.0	1.0	0.05	10	Bu—$O(EO)_2(PO)_2$—H	440	32000	0.29	42.1
	M03	1.0	2.0	2.0	0.05	25	Bu—$O(EO)_2(PO)_1$—H	440	42000	0.29	40.1
	M04	1.0	1.0	1.5	0.10	25	Bu—$O(EO)_2(PO)_2$—H	440	39000	0.29	40.6
	M05	1.0	3.0	3.0	0.10	35	Bu—$O(EO)_2(PO)_1$—H	440	40000	0.29	39.2
	M06	1.0	2.0	1.0	0	10	$(Me)_2N$—$(EO)_1$—H	—	34000	0.29	41.0
	M07	1.0	2.0	1.0	0.05	10	$(Bu)_2N$—$(EO)_1$—H	440	32000	0.29	42.1
	M08	1.0	3.0	2.0	0.05	25	Ph—$O(PO)_{12}$—H	440	42000	0.29	40.1
	M09	1.0	1.0	1.5	0.10	25	NPG	440	39000	0.29	40.6
	M10	1.0	3.0	3.0	0.10	35	PE	440	40000	0.29	39.4

Heading abbreviations
P = polymer
S = Sample
MW = molecular weight (weights average by GPC, calculated value in terms of PEG)
ST = surface tension
conc = concentration (%) (adjusted to the same)
MV = measured value (dynes/cm^2)
L = type of polyalkyleneglycol

Regarding applicants' argument that Fischer et al. (col. 3, line 35-40) only disclose oxyethylene units, the examiner agrees. However, the argued claims are still not allowable in view of Dupont et al. (Title and abstract) which disclose the use diethylene glycol butyl ether in cement to improve its pumpability.

Regarding applicants' admission that there is a partial overlap between Component C and what is described in Kloetzer et al., applicants must recognize then the Kloetzer et al. is adequate for the rejection set forth.

Regarding the "unexpected results" in the Declaration filed January 29, 2008, and in June 11, 2008 in an attempt to show the criticality of the claimed overlap region, applicants fail to recognize that the use of comparative data to show the criticality of the claimed range, applicants must show that the disclosed overlap range is not desirable in the prior art. Since applicants' comparative data fail to show the criticality of the claimed range, the rejection set forth is proper. Applicants must also recognize that the data presented shows all the samples have substantially identical or similar properties or performances within experimental error. Therefore, the comparative data filed fail to demonstrate the criticality of the claimed invention.

Priority

8. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on March 3, 2003. It is noted, however, that applicant has not filed a certified copy of the 2003-55175 application as required by 35 U.S.C. 119(b).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/William K Cheung/
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.
Primary Examiner
September 24, 2008